innovation. Thus, ILECs, CLECs, and consumers will all benefit from the balance we have struck.

### A. Loops

The Commission's "strong expectation" is "that under any reasonable interpretation of the 'necessary' and 'impair' standards of section 251(d)(2), loops will be *generally* subject to the section 251(c)(3) unbundling obligations." *Second FNPRM* ¶ 32 (emphasis added).

Although SBC agrees with the Commission's assessment as a *general* matter, unbundling cannot be required under section 251(d)(2) where there are actual competitive alternatives. And there is at least one market where such alternatives exist already. The facts conclusively show that CLECs have available alternatives to ILEC loops to reach all large business customers (those with 20 lines or more) in wire centers serving 40,000 or more access lines ("Dense Wire Centers") in which CLECs have collocated. This standard is easily applied and will, in essence, serve as a self-executing sunset; even if today the standard is not met in a given wire center, once it does fit the criteria, unbundling of loops to reach business customers in that wire center can no longer be required under section 251(d)(2). That is, once a wire center reaches the requisite density and contains at least one collocated CLEC, the ILEC loop is no longer necessary to serve large business customers in that wire center.

In determining whether loops must be unbundled under section 251(d)(2), the Commission must look to competitive alternatives. As discussed above, alternatives only have meaning once the relevant market is defined. In the case of loops, this is especially important because there are fundamental differences between rural and urban markets, between business and residential loops, and between ordinary and high-capacity loops. That is why both the FCC

and the Department of Justice have concluded that large business customers[30] occupy a discrete telecommunications market.[31]

CLECs have been enormously successful reaching large business customers with their own fiber networks. CLECs have deployed almost 30,000 miles of fiber within the top 50 MSAs. *See* UNE Fact Report, App. A. CLECs have been successful in mid-size markets as well, deploying fiber in all but 15 of the MSAs ranked between 51 and 150. *Id.* at App. B. In total, CLECs serve in excess of 350 Basic Trading Areas. *Id.* at III-3. CLEC fiber is already serving nearly 15 percent of all commercial office buildings in the country, and that number will increase as CLECs continue routinely to extend and augment their fiber networks to reach larger business customers. *See id.*

As the UNE Fact Report establishes, *id.* at III-16, Table 4, it is apparent that a relatively large percentage of CLEC-supplied loops are likely to be found in Dense Wire Centers that have attracted one or more collocated CLECs. Comparing the total CLEC facilities-based lines as a percentage of all business lines (ILEC and CLEC lines) within Dense Wire Centers with collocation, CLECs are serving between 9 and 18 percent of all business lines in these centers

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[30] The FCC recently defined "large business customers" as those with "twenty or more access lines." Second Report and Order and Further Notice of Proposed Rulemaking, *Telecommunications Carriers' Use of Customer Proprietary Network Information and Other Customer Information*, 13 FCC Rcd 8061, 8128 [¶ 88] (1988).

[31] *See, e.g.*, Notice of Proposed Rulemaking, *Competition in the Interstate Interexchange Market*, 5 FCC Rcd 2627, 2634 [¶ 60] (1990) (large business customer market is properly "distinguish[ed]" from "the marketplace as a whole"); *see also id.* ("large business customers tend to be better informed and more sophisticated in their evaluation of their telecommunications alternatives than other customers"); *id.* [¶ 61] (large customers are "unique" in that they "generally have substantial bargaining power," because a very small percentage of business customers accounts for a relatively large percentage of all revenues); *Bell Atlantic/NYNEX*, 12 FCC Rcd at 20016 [¶ 53] (large business customers "are served under individual contracts and marketed through direct sales contracts"); Report of the United States Recommending Denial of NYNEX's Request for a Waiver to Provide International Telecommunications Services Through Private Transatlantic Telecommunications System, Inc. at 17-18, *United States v. Western Elec. Co.*, No. 82-0192 (D.D.C. filed Aug. 4, 1988) ("If NYNEX had proposed to limit the [provision of services] to large users in New York City, the Court would have to determine whether NYNEX has established a lack of bottleneck power with respect to any such economically distinct class of customers.").

with their own loops. *Id.* at III-16. By comparison, three and a half years after *Execunet II*,[32] AT&T's competitors were serving less than five percent of business lines.[33] Thus, this type of market share establishes without doubt that efficient CLECs have a meaningful *opportunity* to compete for larger business customers because they *are* competing.

Because SBC has made an effort to rely on factual evidence of *actual* competition instead of *potential* competition, this standard is a conservative one and does not account for the rise in other alternatives to the loop aside from CLEC fiber. For the Commission to comply fully with section 251(d)(2), it must also develop a sunset provision that accounts for the fact that, in the future, the competitive story is likely to be quite different as fixed wireless, mobile wireless, and cable loops become feasible alternatives for larger numbers of customers.

The UNE Fact Report contains a comprehensive analysis, but the following facts are illustrative of the trend, which will soon result in competitive loop availability not just to the large business customer market but to the residential and small business market as well:

Fixed Terrestrial Wireless. As the Commission has already recognized, fixed wireless access (wireless local loop, or WLL) offers "a replacement for the 'last mile' of copper wire."[34] WLL is already relatively cheap to deploy, the costs themselves are not distance sensitive, and almost every business in a license area can be reached as soon as service is activated. *Id.* at III-10. Moreover, wireless roll-out times are very short – as short as 90 to 120 days. *Id.* Wireless has other advantages – including mobility, greater capacity, and lower maintenance costs. *See id.* at III-10-11. Many of the largest CLECs already have obtained wireless facilities (including

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[32] *MCI Telecomms. Corp. v. FCC*, 580 F.2d 590 (D.C. Cir.), *cert. denied*, 439 U.S. 980 (1978).

[33] *See* C. Yang, *Yes, Virginia, There Is Phone Competition*, Business Week, Sept. 28, 1998.

[34] Third Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, 13 FCC Rcd 19746, App. F at F-1, (Appendix to Third Report published at 1998 FCC LEXIS 2816) (1998) ("*OBRA Report*").

licenses) to extend their fiber networks. *See id.* at III-12, Table 1. AT&T, which is currently test-marketing fixed wireless in Dallas, believes fixed wireless technology could serve 5 million to 10 million U.S. homes.[35]

Mobile Wireless. According to the Commission, "prospects for consumers substituting for wireline services by using mobile telephone carriers appear to be improving."[36] Forty-two percent of all Americans would consider switching their local phone service to wireless,[37] and usage patterns strongly suggest that a rapidly growing number of consumers view wireless as a direct substitute for wireline calling.[38] The supply is beginning to catch up with the demand: cellular and PCS services are increasingly becoming an economic substitute to wireline connections. *See id.* at III-22-23.

Cable Loops. As the recent tide of cable mergers and acquisitions demonstrates, cable is poised to compete directly against the ILEC network. Cable system upgrades to provide telephony or cable modem service are well underway, and the costs can be recouped with the great advantages such systems will have to provide bundled services (or "one stop shopping"). The provision of local telephone service over cable is *already* a reality in multiple markets throughout the country. *Id.* at III-19, Table 7. Overall, about 20 percent of U.S. cable subscribers are currently accessed by two-way systems. *Id.* at III-20. And companies boast big plans to increase that number.

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[35] Jennifer Files, *Wireless Phones Headed into Homes: AT&T Planning New High-Tech Service*, Dallas Morning News, May 20, 1999, at 1A.

[36] Memorandum Opinion and Order, *Application of 360 [Degrees] Communications Company Transferor, and ALLTEL Corporation Transferee for Consent to Transfer Control of 360 [Degrees] Communications Company and Affiliates*, DA 98-2637, Report No. LB-98-50, 1998 WL 906754 [¶ 33] (1998).

[37] PCIA Press Release, *PCIA Launches Advertising Blitz on Wireless Competition*, Mar. 26, 1998, available at <http://www.pcia.com/press/privan.htm>.

[38] The average PCS subscriber now makes 250 to 350 minutes of calls per month, which is about double the usage levels in 1998. UNE Fact Report at III-23. And that number continues to escalate. *Id.*

Indeed, the list of cable telephony offerings will expand exponentially as AT&T upgrades its cable properties. AT&T has already staked more than $90 billion on its belief that cable will substitute for the local ILEC loop.[39] In the past year, AT&T has acquired the nation's largest cable company (TCI) and is in the process of acquiring the fourth largest (MediaOne). The company is also forging alliances with the second largest cable company (Time Warner) and the fifth largest (Comcast). AT&T explains that its recent investments in cable answer "a big part of the question about how [AT&T] will provide local service to U.S. consumers."[40] Time Warner expects 85 percent of its cable plant to be upgraded by the end of 1999. *Id.* at III-20. TCI projects that, by the end of 1999, 60 percent of its plant will be upgraded to two-way capability, and, by 2000, 90 percent will be. *Id.* According to MediaOne, broadband telephony will be available to most of the homes in its service areas by the end of 2000. *Id.*

Once these upgrades are made, cable companies can offer many services that basic residential loops cannot. *Id.* at III-20-21. Cable loops increasingly are being used to provide high-speed Internet services. In fact, data loops account for much of the current growth in usage of ILEC loops because households obtain second phone lines mainly for fax and Internet services. *Id.* at III-21. As of late 1998, at least 500,000 residential customers were accessing high-speed Internet services through cable systems.[41] Cable operators are projected to deploy five times as many high-speed modems over the next four years as phone companies will deploy for DSL.[42] These data channels will be able to provide voice service as well, and trials are

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[39] Seth Schiesel, *AT&T Conjures Up Its Vision For Cable, but Can It Deliver?*, N.Y. Times, May 7, 1999, at A1.

[40] AT&T News Release, *AT&T, TCI to Merge, Create New AT&T Consumer Services Unit*, June 24, 1998, available at <http://www.att.com/press/0698/980624.cha.html>.

[41] Paul Kagan Associates, Inc., *Cable TV Technology*, Aug. 26, 1998, at 3, as cited in NCTA, *Cable Television Industry Year-End Review – 1998*, available at <http://www.ncta.com/yearend98_3.html>.

[42] *Study Sees Cable Modem Deployments Surpassing ADSL Installations by 2003*, Broadband Networking News, Aug. 4, 1998.

already under way in several cities for IP telephony. *Id.* at III-19, Table 7. TCI President Leo Hindery claims that, "[w]ithin 5 years, 100% of homes passed by AT&T will be able to take Internet protocol (IP) telephony," and thirty percent actually will subscribe.[43]

The FCC has already recognized the potential for cable and wireless alternatives to compete against ILEC loops.[44] SBC recognizes, however, that at this point in time the Commission may conclude that cable and wireless are not yet viable alternatives. But, while that may be true today, cable, fixed wireless, and mobile wireless loops are rapidly gaining ground. The Commission should therefore implement a sunset that reflects this trend.

First, the Commission should adopt a sunset that is effective once the incumbent cable operator begins offering telephony on TCP/IP protocols, or their equivalent. At this point, a fully viable alternative to the local loop exists. That alternative, moreover, can route traffic to any number of alternative CLECs. The point of the Internet's TCP/IP protocol is to package and address data in a manner that is hardware independent and network independent. TCP/IP protocols already provide seamless interconnection between different hardware platforms, wired and wireless, copper and coax, and so forth. As one textbook explains, TCP/IP incorporates a "common addressing scheme that allows any TCP/IP device to uniquely address any other device in the entire network, even if the network is as large as the worldwide Internet."[45] Thus, even in communities served by only a single cable operator, a cable system capable of providing high-speed data service suitable for telephony will still allow customers to reach the CLEC of their choice.

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[43] *Hindery Denies Athome-Roadrunner Talks, Cable Fault In Rate Hikes*, Communications Daily, Mar. 29, 1999.

[44] *OBRA Report*, App. F at F-1, 1998 FCC LEXIS 2816; Fifth Annual Report, *Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming*, 13 FCC Rcd 24284, 24321-22 [¶ 59] (1998) ("*Fifth Annual Video Programming Report*").

[45] C. Hunt, *TCP/IP Network Administration* 4 (O'Reilly & Associates, 1998).

If further levels of cable unbundling are required to put CLECs on fully equal competitive terms, the Commission has the power to order it. The Commission's decision not to do so would reflect the Commission's conclusion that no further unbundling was necessary to promote competition. If that is true for cable telephony, it would be true for traditional telephony as well.

Second, the Commission should adopt a sunset for the unbundling of loops serving residential customers and small business customers based on the ability of wireless competitors to offer service at a price that is competitive with wireline service. The Commission has already recognized that wireless service offers a functional alternative to wireline connections; the only obstacle to wireless as an alternative has been pricing.[46] But the Commission has acknowledged that wireless providers are now "using aggressive pricing to position their services as true replacements for the wireline based services of LECs."[47] "[A]s wireless service rates continue their downward trend and the use of wireless service increases, there is a greater likelihood that customers will view their wireless phones as a potential substitute for their wireline phones."[48] Exact price parity is not the right test, however. Wireless phones offer the considerable advantage of mobility, so consumers are willing to pay more for them, just as they are willing to pay more for cable service than for (free) broadcast television. The Yankee Group estimates that

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[46] *See, e.g.*, Memorandum Opinion and Order, *Application by BellSouth Corporation, et al. Pursuant to Section 271 of the Communications Act of 1934, as amended, To Provide In-Region, InterLATA Services In Louisiana*, 13 FCC Rcd 6245, 6290 [¶ 73] (1998) (PCS providers "appear to be positioning their service offerings to become competitive with wireline service, but they are still in the process of making the transition 'from a complementary telecommunications service to a competitive equivalent to wireline services.'") (quoting Second Report, *Implementation of Section 6002(b) of the Omnibus Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, 12 FCC Rcd 11266, 11326 (1997)).

[47] *OBRA Report*, 13 FCC Rcd at 19817.

[48] Memorandum Opinion and Order, *Cellular Telecommunications Industry Association's Petition for Forbearance from Commercial Mobile Radio Services Number Portability Obligations and Telephone Number Portability*, WT Docket No. 98-229 & CC Docket No. 95-116, FCC 99-19, 1999 WL 58618 [¶ 23] (rel. Feb. 9, 1999).

the point of displacement is a wireless-to-wireline price ratio of 3 to 1.[49] The Commission must also consider the value of vertical services – such as Caller ID, voice mail, and paging – which PCS providers routinely bundle. On a bundled basis, these services are already priced at levels directly comparable to those charged for similar bundles of wireline alternatives, in both business and residential markets. Wireless calling is cheaper still when large calling areas (which eliminate many toll calls) and the elimination of long-distance charges under "one rate" plans enter the calculus. The Commission must, therefore, sunset the unbundling of loops to small businesses and residences when the price of wireless service, with all its advantages factored in, drops to the point that wireless is an economic substitute for wireline.

Until these thresholds are met, SBC agrees that the loop should be unbundled except for loops serving large customers in Dense Wire Centers with collocated CLECs. The loop UNE itself should be defined as a single, copper transmission facility between the LEC central office frame and the end user customer premises. As we discuss *infra*, pp. 51-55, the definition of a loop should not include dark fiber. It should also not include sub-loop unbundling. Remote access at points such as feeder distribution interfaces (FDIs), remote terminals, and controlled environment vaults (CEVs) is not necessary for the CLEC to provide service, nor will such lack of access impair the CLEC's ability to provide service. A CLEC has all the access it needs under section 251(d)(2) when it has access to the local copper loop.[50]

Sub-loop unbundling raises a host of technical, safety, security, and maintenance issues. As SBC explained in its original comments in this docket, space is limited in the FDI. SBC's

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[49] Yankee Group, *Yankee Group Pricing Study: All-Inclusive Wireless Rates Usher in The Era of Landline Displacement*, Jan. 4, 1999; B. Felps, *Study Says Wireless To Challenge Landline*, Wireless Week, Jan. 11, 1999.

[50] CLECs, moreover, have the right to collocate in adjacent CEVs or similar structures, when space is legitimately exhausted in a particular LEC premises. *See* First Report and Order and Further Notice of Proposed Rulemaking, *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, FCC 99-48 [¶ 44] (rel. Mar. 31, 1999) ("*Second Advanced Services Order*").

outside plant is designed with minimum access points to limit its own technicians' entry into the cables. This is done to decrease the potential for network problems. The FDI was therefore not designed or intended to be an industry-wide access point. Unbundling the loop at the FDI would necessitate entry by multiple parties into the cabinet, posing a greater threat of network trouble and reduced customer service quality to customers of both carriers. The risks would increase exponentially as more carriers were permitted access to the FDI. Moreover, by separating the feeder from the distribution, the ability to mechanize testing and monitoring from the switch to the end user would be lost. The majority of network troubles originate in the outside plant. Diminishing testing and monitoring capabilities of the outside plant would inevitably have a negative effect on customer service. Lack of mechanized testing means having to dispatch a technician to the unbundled FDI to test every customer port, which would significantly increase the cost of service.

A rule requiring unbundling multiplexing/concentration from DS1 transport in a remote terminal fed by copper T1 cables raises similar concerns. DS1s are hardwired into the digital loop carrier, so there is no cross-connect access to accommodate another provider's DS1. Generally, there is no spare capacity on a remote terminal's shelves to terminate another carrier's T1 cables. Since each remote terminal is mated with a central office terminal via DS1s, it is not possible to place a network trouble alarm on another provider's DS1 that does not terminate at the central office terminal.

Finally, the Commission should not require ILECs to unbundle multiplexing/ concentration from DS1s that are fiber-fed and are housed in a CEV. CEVs are protected environments, are not manned, have very little "working room," and are not designed for public access by multiple parties. Thus, there is great potential for harm to a carrier's facilities in a CEV due to multiple-carrier access. The risks and costs of sub-loop unbundling are not justified by section 251; CLECs are not impaired under section 251(d)(2) without such unbundling. As

long as CLECs have access to the loop – defined as a dedicated single, copper transmission facility between the LEC central office frame and the end user customer premise – they have all they need to compete.

### B. Network Interface Devices (NIDs)

The FCC has defined a NID as a "cross-connect device used to connect loop facilities to inside wiring." 47 C.F.R. § 51.319(b). In its *Local Competition Order*, the FCC found that, "[i]n many cases, inside wiring is connected to the incumbent LEC's loop plant at the NID," and that, "[i]n order to provide service, a competitor must have access to this facility."[51] The FCC did not make any other findings regarding the ability of competitors to supply NIDs themselves or to obtain them from third parties.

The FCC has implicitly acknowledged in the past that NIDs are at least potentially competitive. In a 1990 proceeding concerning the deregulation of inside wiring, the FCC eliminated the requirement that end users connect their inside wiring to the telephone network through a carrier-installed jack (*i.e.*, a NID).[52] AT&T argued at the time that "the customer should be allowed to install a jack at any point on the customer's side of the protector. This can be accomplished with little or no hazard to the customer and, if proper wire and jacks are used, with assurance of no harm to the network."[53] In an unrelated 1988 proceeding, AT&T urged the Commission to deregulate the NID entirely.[54]

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[51] 11 FCC Rcd at 15697 [¶ 392].

[52] Report and Order and Further Notice of Proposed Rulemaking, *Review of Sections 68.104 and 68.213 of the Commission's Rules Concerning Connection of Simple Inside Wiring to the Telephone Network and Petition for Modification of Section 68.213 of the Commission's Rules Filed by the Electronic Industries Association*, 5 FCC Rcd 4686, 4690 [¶ 17] (1990).

[53] *Id.*

[54] In a brief before the FCC, AT&T argued: "[C]onsistent with the Commission's fundamental principle to assign costs to the cost causative customer, all expenses associated with installation of interface devices on the customer's side of the protector should be accounted for as a nonregulated activity and not charged to ratepayers." AT&T

When the Commission looks to alternative sources for NIDs, as the Supreme Court requires it to do, it will be quite apparent that NIDs are readily available to CLECs from a multitude of non-ILEC sources. NIDs are inexpensive, off-the-shelf pieces of equipment sold on the open market, by numerous companies, and in any volume. The UNE Fact Report identifies several manufacturers, including Siecor, Keptel, Gusto Communications, AMP, 3M, Charles Industries, Lucent Technologies, Raychem, Reltec, and TII Industries. *Id.* at III-29. These manufacturers make their NIDs available to CLECs and ILECs alike, and CLECs can purchase whatever quantity they need. The NIDs themselves, moreover, are cheap. *Id.*

There are few, if any, economies of scope or scale that an ILEC has with respect to purchasing or installing NIDs, particularly on a going-forward basis.[55] The ease with which CLECs can provide their own NIDs has been demonstrated in the marketplace. Various providers – CLECs that connect large business customers to CLEC fiber rings, fiber wireless providers, and cable operators that have upgraded their facilities to supply cable telephony – all supply their own NIDs.

Based on the above facts, it is clear that a NID should not be treated as an independent UNE under section 251(d)(2). Although section 251(d)(2) does not require it, SBC will continue – voluntarily – to provide NIDs as part of the loop UNE (where available).

### C. Local Switching

In identifying local switching as a UNE in its *Local Competition Order*, the FCC stated that the vast majority of the 23,000 central office switches in the U.S. are operated by incumbent

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Comments on Direct Cases, *Annual 1988 Access Tariff Filings*, CC Docket No. 88-1, Phase II (FCC filed July 18, 1988).

[55] Moreover, existing NIDs are not adequate to serve long-term demand for advanced services like ADSL. In order to provide these services, existing NIDs must be modified (*e.g.*, adding a splitter) or replaced. Thus, ILECs have no advantage over CLECs in supplying these new NIDs.

LECs, and that competition would not evolve "quickly if new entrants were required to replicate even a small percentage of incumbent LECs' existing switches prior to entering the market."[56] The FCC did not conduct any analysis as to the actual availability of competitive switching. It rejected arguments – made by SBC, among others – that mandating access to unbundled local switching was not appropriate because competitors were likely to deploy their own switches.

The Commission rejected these arguments, however, based on its original misinterpretation of the "necessary" and "impair" standards. The FCC found that "[t]hese parties present no evidence that competitors could provide service using another element in the LEC's network at the same cost and at the same level of quality."[57] Based on this misinterpretation, the FCC did not inquire whether CLECs could obtain unbundled switching from sources other than incumbent LECs.

In the wake of the Supreme Court's decision, the actual availability of competitive switching must now be analyzed. This analysis demonstrates that there are a multitude of markets where switching should not be unbundled. Once again, the best evidence is *actual* CLEC deployment of switches. CLECs currently have 700 of their own local switches, in all of the major metropolitan areas and many smaller areas. *See id.* at I-1-2 & Map 1, Fig. 1; *see also id.* at App. A. More than 600 of those have been deployed since the 1996 Act. *Id.* at I-1. More than 165 different CLECs had switches in 320 cities as of March 1999. *See id.* at I-2, Map 1 & App. A. This includes not merely the largest CLECs (in terms of revenue), but CLECs with smaller revenues and CLECs that serve only a few markets. *See id.* at I-1. And CLEC switches can serve a much greater area than the area typically served by an ILEC switch. At the very

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[56] 11 FCC Rcd at 15705 [¶ 411].

[57] *Id.* at 15711 [¶ 420].

least, efficient CLECs have a meaningful opportunity to compete where a rate exchange area is served by one or more CLECs.

As explained in the UNE Fact Report, both the FCC and state regulators have concluded that the rate exchange area is the starting point for assessing competition in the provision of switching services. *Id.* at I-4. There are two ways to determine a CLEC's presence in the rate exchange area: either through the assignment of an NXX code to the CLEC or through the provision of number portability at the CLEC's request.

NXX Codes. It is quite simple to track the NXX codes assigned to CLECs because the Commission itself compiles information on where CLECs have obtained NXX codes.[58] Bellcore's *Local Exchange Routing Guide* (LERG) database[59] compiles the same information and updates it more frequently than the FCC. Thus, the FCC's own reports, updated by means of the industry's standard database, provide exact, unambiguous data on which CLECs are using their own switches to serve which rate exchange areas. *See id.* at I-7.

The UNE Fact Report provides a detailed analysis of this information. In brief, as of March 1999, *more than one third* of all BOC and GTE rate exchange areas in the United States were served by at least one CLEC voice switch. *Eighteen percent* of the BOC/GTE rate exchange areas were served by at least two CLEC switches. *Twelve percent* were served by at least three. *Nearly eight percent* were served by four or more. *See id.* at I-7, Table 1, I-8, Map 2.

When we apply the NXX code analysis to SBC's region, the numbers are similar: More than 38 percent of the rate exchange areas in SBC's region were served by at least one CLEC

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[58] *See* FCC, Common Carrier Bureau, *Local Competition* 41-112 (Dec. 1998) ("*FCC Local Competition Report*") (reporting such information by state and by LATA).

[59] Bellcore, TR-EQP-000315, *Local Exchange Routing Guide* (Mar. 1, 1999) ("LERG"). On March 9, 1999, Bellcore changed its name to Telcordia. *See* S. Salamone, *Bellcore Morphs Into Telcordia Technologies*, TechWeb News, Mar. 10, 1999.

voice switch. Thirty-one percent were served by at least two CLEC switches. Twenty-three percent were served by at least three. And nearly 20 percent were served by four or more. *Id.* In total, CLECs have deployed or are deploying 160 switches in SBC's region.[60]

The numbers are even higher in major markets. *See id.* at I-11, Table 2. For example, in the Dallas MSA, 17 CLECs operate 22 switches.[61] Seventy-three percent of the rate exchange areas in that MSA are served by at least one CLEC switch; 44 percent are served by two or more; 24 percent by four or more. *See id.* at I-12. AT&T operates a DMS 100 and a Lucent 5ESS, which together serve 57 rate exchange areas. MCI WorldCom operates three switches – a DMS 100 (76 rate exchange areas), a Nortel DMS 10-S (ten rate exchange areas), and an AXE-10 (one rate exchange area). Allegiance operates a 5ESS (26 rate exchange areas) and a Nortel DMS 500 (one rate exchange area). CoServ, ICG, Fiber Wave, Frontier, Great West, GST, Intermedia, Millenium, NEXTLINK, Nortex, Optel, Southside, Teligent, Westel, and WinStar each operates one switch. *Id.* at I-12, I-16, Map 5.

As impressive as these numbers are, they are actually quite *conservative* numbers. They count only CLEC switches actually up and running; CLECs could readily extend the geographic reach of existing switches, or deploy still more switches. These numbers also do not include packet switches, which handle fax, email and data, along with voice traffic.

Most fundamentally, these numbers ignore the fact that in many – if not most – cases, a CLEC does not need an NXX code to provide service in a particular rate exchange area to offer service using its own switch but will instead obtain a ported number from an ILEC.

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[60] We have arrived at this figure by including all of the switches in the seven States in which SBC has incumbent territory. 137 of these switches serve SBC rate centers, and 23 do not. All other figures are percentages of SBC rate centers.

[61] The Dallas MSA consists of 55 different rate centers. SBC and GTE jointly serve this MSA.

Ported Numbers. Using number portability, a switch-based CLEC can "win" an ILEC customer in a rate exchange area without the need for a new telephone number by porting the customer's existing telephone number. Since the embedded base of ILEC customers already have working telephone numbers, the CLEC's request for number portability is a reliable indicator of a switch-based CLEC's provision of service in a rate exchange area.

Section 251(b)(2) requires all local exchange carriers to provide, "to the extent technically feasible, number portability in accordance with requirements prescribed by the Commission." 47 U.S.C. § 251(b)(2). Under FCC rules, incumbent LECs are required to implement LNP only upon request, in switches that CLECs *specifically designate as their competitive targets*.[62] This approach, the FCC concluded, "allows carriers to focus their resources where competitors plan to enter, which is where number portability is likely to have the most impact in the short run on the development of competition for local services."[63] Because number portability is implemented *only* on ILEC switches that CLECs have formally designated as targets of their "actual competitive interest,"[64] it is reasonable to infer that all rate exchange areas served by an LNP-capable ILEC switch face direct competition from CLEC

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[62] In the 100 largest MSAs, LECs are required to provide number portability only in switches for which a competing carrier "has specifically and reasonably requested the provision of number portability." First Memorandum Opinion and Order on Reconsideration, *Telephone Number Portability*, 12 FCC Rcd 7236, 7272-77 [¶¶ 59-71] (1997) ("*First Reconsideration Order*"). With respect to a switch located outside of the top 100 MSAs, a CLEC may submit a request to an ILEC to implement LNP in that switch, and ILECs must fulfill such requests within six months. *Id.* at 7298 [¶ 107].

[63] Third Report and Order, *Telephone Number Portability*, 13 FCC Rcd 11701, 11714 [¶ 20] (1998).

[64] *First Reconsideration Order*, 12 FCC Rcd at 7277 [¶ 70].

switches. Indeed, any other inference requires an assumption of bad faith by CLECs – an assumption of deliberate misrepresentation to federal and state regulatory authorities.

It is possible to determine the precise ILEC switches facing CLEC competition because information on whether a particular switch is LNP-capable has since been entered into the LERG database. UNE Fact Report at I-20. Using the LERG, we can further determine the specific rate exchange areas associated with each switch. As the UNE Fact Report explains, it is reasonable and conservative to assume that a CLEC switch can, at a minimum, serve a single MSA. *Id.* at I-21. Every CLEC switch, in other words, is effectively capable of competing directly against every LNP-enabled ILEC switch located in the same MSA. *Id.*

Applying the LNP methodology, we find that, within the 50 largest MSAs, CLEC switches may currently obtain ported numbers on 81 percent of all BOC and GTE switches, which serve 75 percent of all BOC and GTE rate exchange areas. *See id.* & Table 3. Sixty-four percent of these MSAs contain switches of at least five different CLECs; 18 percent contain switches of at least 10 different CLECs. *See id.* at I-21, I-22, Table 4. In SBC's region, CLEC switches currently obtain ported numbers on 54 percent of its switches, which serve 46 percent of its rate exchange areas. *Id.* at I-21, Table 3. In Houston, for example, there are nine CLECs with 10 switches. *Id.* at I-22, Table 4. These CLECs may obtain ported numbers on 80 percent of the ILEC switches, which serve 61 percent of the rate exchange area. *Id.* In Dallas, 16 CLECs operate 22 switches. These CLECs may obtain ported numbers on 79 percent of all ILEC switches, which serve 76 percent of all ILEC rate exchange areas. *Id.*

And CLEC switches have a far greater reach than ILEC switches typically have. CLECs may readily extend the reach of their existing switches to serve additional central offices with the

same switch. AT&T concedes that a single switch can easily serve customers within a 125-mile radius.[65] The actual radius is closer to 600 to 650 miles because switch manufacturers have specifically designed their switches to meet CLECs' need to serve large geographic areas – and CLECs are using these remote switches. *See id.* at I-24, Table 5. Moreover, as the UNE Fact Report explains, current CLEC practices support the conclusion that the effective footprint of a CLEC switch is actually the *entire LATA* in which the CLEC switch is located. *See id.* at I-25-27 & Map 9.

CLECs can also extend their reach by deploying new switches because numerous manufacturers supply switches, and their prices continue to fall with digital technology advancements. *See id.* at I-28-31. These switch manufacturers target CLEC needs and support a full range of services, including local and long-distance, ISDN, Internet access, wireless PCS, Advanced Intelligent Network (AIN) Service, interactive video, and multimedia services. *Id.* at I-28-29. Because switches are highly scalable, it is possible for even small CLECs to deploy switches without a big up-front investment or lots of excess (unused) capacity. CLECs need only purchase the switching capacity that they currently need. Moreover, switch deployment times have dropped dramatically, with the entire process taking as little as 40 days. *Id.* at

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[65] *See* Petition of AT&T Corp. to Deny Application at 24, *GTE Corp. Transferor, and Bell Atlantic Corp. Transferee, For Consent to Transfer of Control*, CC Docket No. 98-184 (FCC filed Nov. 23, 1998) ("Such technology has a range of about 125 miles, which would permit it to be used in conjunction with the contiguous provider's switch in its nearby home territory."). Robert Bork recently reiterated this claim in a letter to the FCC prepared on AT&T's behalf. *See* Memorandum from Robert H. Bork to FCC Chairman William E. Kennard (Apr. 7, 1999).

I-29-30. In addition to class 5 central office switches (the typical end-office voice switch), there are additional switch substitutes available through long-distance switches, wireless switches, packet switches, and PBXs. *See id.* at I-31-35.

The Commission's recent collocation order further facilitates CLECs' ability to deploy their own switching capabilities.[66] Incumbent LECs must make available to requesting CLECs shared cage and cageless collocation arrangements. When collocation is exhausted at a particular LEC location, incumbent LECs must permit collocation in adjacent controlled environmental vaults or similar structures.[67] If necessary, ILECs must create additional collocation space within a central office by removing obsolete and unused equipment.[68] Incumbent LECs are required to permit competitors to collocate all equipment used for interconnection and/or access to UNEs, even if it includes a "switching" function.[69] And ILECs may not require that the switching or functionality of equipment be disengaged.[70] Moreover, virtual collocation is available where there is no space for physical collocation.

Under the Commission's collocation orders, then, multiple CLECs have the capacity to collocate in a central office and many more can collocate in adjacent space where technically feasible. Certainly, efficient competitors can compete when they have such expansive collocation rights and switching equipment is so readily available. Even before the Commission

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[66] *See Second Advanced Services Order* ¶¶ 17, 78-107.

[67] *Id.* ¶ 8.

[68] *Id.*

[69] *Id.*

[70] *Id.*

issued its new expansion of the collocation rules, virtually all of SBC's central offices remained open to physical collocation. Out of more than 1300 central offices in SWBT territory, merely 10 lacked the space for traditional caged collocation. Of the 10, five were unavailable because they had an average of two collocators already in each office. In Pacific Bell's territory, only 21 of the almost 650 offices were unavailable for physical collocation. Of those 21 offices, 10 already had an average of five collocators in each office. Thus, even in the small number of offices not available for collocation, the main reason for lack of space is that competition is thriving. Moreover, efforts are now underway to review all closed offices to determine if additional collocation space is available given the Commission's recent pronouncement on cageless collocation.

CLECs are not "impair[ed]" simply because a finite – though large – number can obtain physical collocation. CLECs may obtain virtual collocation, and, in any event, as noted above, the critical inquiry under section 251(d)(2) is whether an efficient competitor has a meaningful opportunity to compete, not whether *every* competitor can compete.

The Commission's collocation order also makes it easy for CLECs to obtain switching from other CLECs. Indeed, there are at least three options for CLECs to obtain switching from other CLECs. First, the ILEC must provide the necessary cross-connect between collocating CLECs.[71] Second, CLECs may share collocation cages, so a CLEC can easily use another CLEC's switch by having its loops go to the switch provider's existing cage. Third, subject to

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[71] *Id.* ¶ 32.

the terms of its interconnection agreement with the ILEC, a switch-based CLEC (CLEC-2) can install or order loops from the ILEC on behalf of another CLEC (CLEC-1) so that the ordered loops feed directly into CLEC-2's switch.[72] And, of course, if a CLEC does not desire access to the ILEC's loops, it does not need to collocate at the ILEC's central office at all.

In sum, the wide availability of switches supplemented by the availability of collocation demonstrates that CLECs do not need the ILEC switches to compete. But, even more fundamentally, the *actual* deployment of CLEC switches and CLEC success at self-provision belies any claim of "impair[ment]." Thus, at the very least, the "necessary" and "impair" standards are not satisfied where a rate exchange area is *already* being served by at least one CLEC voice switch.

Although SBC recognizes the administrative appeal of a blanket rule that would either require or not require the unbundling of switching on a national basis, the competitive realities will not support such a simplistic approach. Instead, the Commission must adopt a national *standard* for switching that reflects the availability of actual alternatives. The standard SBC proposes – no unbundling where a rate exchange area is already served by one CLEC switch – is easily administered. This standard, moreover, acts as a self-executing sunset: whenever a rate exchange area is being served by at least one CLEC switch, there is no longer any need for unbundled switching for that rate exchange area.

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[72] If CLEC-1 chooses to order unbundled loops from the ILEC, the Commission cannot require the ILEC to route the traffic from those loops to CLEC-2. That would necessarily involve the ILEC in a form of switching, which is *not* part of the loop UNE. Nor is it necessary to allow CLECs a meaningful opportunity to compete, given the other possible arrangements noted in the text. As discussed in Part I, *supra*, UNEs must be reviewed in isolation for

### D. Signaling Networks and Call-Related Databases

Signaling is a servant to switching. That is, current technology requires each local switch to link to one – and only one – signaling network. To the extent that a CLEC purchases unbundled switching from an RBOC or GTE, it must necessarily connect to that same ILEC's signaling network. Thus, to the extent section 251 requires ILECs to unbundle their switches, SBC agrees that ILECs must also provide CLECs access to the ILEC signaling network for purposes of the unbundled switching.

To the extent that CLECs provide their own switching or obtain switching from a non-ILEC, CLECs do not need access to an unbundled signaling capability from ILECs. CLECs may readily deploy their own signaling networks or link to the signaling network of a third party. The strongest evidence of this fact is the large number of CLECs *already* deploying their own network or using the network of a third party. *See* UNE Fact Report at V-2-5 & Table 1. There are at least six major facilities-based SS7 network providers that operate nationwide networks and four additional mid-sized CLECs that operate regional SS7 networks. *Id.* at V-5. The Commission has already recognized that CLECs may rely on these providers instead of incumbents to obtain SS7 capabilities.[73]

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consistency with section 251(d)(2), and a CLEC cannot use the convenience of having two elements (such as loops and switching) combined as a basis for bootstrapping a competitive element (switching) onto the UNE list.

[73] Memorandum Opinion and Order, *Application of WorldCom, Inc. and MCI Communications Corp. for Transfer of Control of MCI Communications Corp. to WorldCom Inc.*, 13 FCC Rcd 18025, 18061 [¶ 60] (1998) ("We disagree with GTE's claim that the new firms [e.g., Qwest, IXC Williams, Level 3] will be unable to deploy signaling equipment for years. Applicants identify several companies, including Transaction Network Services, Inc., GTE Intelligent Network Services, and SNET, that provide wholesale SS7 signaling services.").

Moreover, there are no significant barriers to additional CLEC entry. Because STPs and databases have very large geographic footprints, no CLEC needs to replicate the ILEC architecture to provide ubiquitous signaling and database services. The necessary signaling equipment is readily available on the open market. Major suppliers of SS7 equipment include Nortel, Lucent, Tekelec, Alcatel, and ADC. *Id.*

CLECs that provide their own switches also do not need access to SBC's Line Information databases at TELRIC prices. Switch-based CLECs can readily store their data in any Line Information (LIDB) or Name Information (CNAM) database in the nation. For example, Illuminet is an independent LIDB/CNAM database provider that has won a substantial share of the switch-based market in SBC's region. Illuminet provides SS7 network, database, and billing services to more than 1000 companies.[74] Illuminet "has access agreements already in place to all LIDBs in the country."[75] Revenue Communications, Inc. also offers LIDB storage, promising that its CLEC LIDB will give CLECs "a vehicle to generate revenue for queries in much the same way that the incumbent phone companies have been generating revenue for years."[76]

CLECs that provide their own switching and LIDB/CNAM are not at any competitive disadvantage. SBC connects to these alternative signaling networks and supports intraLATA calling (*i.e.,* call set-up) between the competing LECs and SBC subscribers. Thus, there is no

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[74] *See* <http://www.illuminet.com/local/lolidb.htm>.

[75] *Id.*

[76] *See* <http://www.revcom.net/pr2-98.htm>.

impairment to CLECs if they provide their own signaling and LIDB/CNAM when they do not obtain switching from the ILEC.

### E. Interoffice Transmission Facilities

In its *Local Competition Order*, the FCC required ILECs to provide interoffice transport, stating that "entry will be facilitated if competitors have greater, not fewer, options for procuring interoffice facilities as part of their local networks."[77] In light of the Supreme Court's opinion, it is clearly irrelevant whether unbundling provides CLECs with "greater options." The test is whether CLECs are "impair[ed]" without access to the ILEC network element in question and whether, if proprietary, the element is necessary for the CLEC to provide services.

Thus, as with all other elements, it is now necessary to evaluate what alternatives are available to CLECs. And, once again, the most probative evidence of what CLECs *can* do is evidence of what CLECs are *actually* doing. As the UNE Fact Report explains, CLECs have deployed fiber in all major metropolitan areas, and in the overwhelming majority of second- and third-tier markets. *Id.* at II-6 & App. A, App. B. Indeed, CLEC fiber networks extend far beyond the level of "interoffice" transport – these networks serve not only ILEC and CLEC offices, but a great number of private switches, too. CLEC fiber networks serve nearly 15 percent of all commercial office buildings in the country. *Id.* at II-6. Since 1996 alone, the number of CLECs that have deployed fiber networks has grown from 29 to 60, and the number of cities served by these carriers' fiber has grown from 130 to 289. *See id.* at II-3, Fig. 2, II-6.

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[77] 11 FCC Rcd at 15718 [¶441].

Within the top 50 MSAs, CLECs have deployed almost 30,000 miles of fiber. Forty-seven of the top 50 MSAs are served by at least three fiber-based CLECs. *See id.* at II-6 & App. A. For example, in SBC's region, Dallas has 12 CLECs with 685 known route-miles of fiber, and three additional CLECs have concrete plans to deploy fiber of their own. In Houston, the story is similar: 11 CLECs have deployed fiber and two more CLECs plan to do the same. Houston already has 831 known route-miles of CLEC fiber. San Diego has six CLECs and more than 550 known route-miles of fiber, and seven more CLECs are poised to enter the market with their own fiber. *Id.* at App. B. These examples are by no means exceptional. *See id.*

CLECs have also deployed fiber in all but one of the MSAs ranked between 51 and 150. *See id.* To take but a few examples from SBC's region, eight CLECs serve Austin (ranked 55th among MSAs); two CLECs serve El Paso (ranked 73rd); and five CLECs serve Corpus Christi (ranked 127th). *Id.*

This CLEC fiber provides competitive interoffice transport to ILEC wire centers, major interexchange carrier POPs, and ILEC switches, as well as the CLEC's own switches. In fact, in the vast majority of wire centers in which CLECs have obtained collocation, they are not taking the interoffice transport UNE, but instead are relying on either their own facilities or those of a third party, or they are leasing ILEC facilities pursuant to an access tariff. In SBC's region, for example, CLECs have obtained collocation in 330 wire centers, but are taking interoffice transport from SBC in only 37 wire centers.[78] *Id.* at II-21.

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[78] In 143 of the 330 wire centers, CLECs are obtaining unbundled loops.

The strength of competition in interoffice transport is not surprising. As far back as 1982, when their own networks were limited, MCI and Sprint insisted that interoffice transport could be competitive right down to the level of *every* class 5 end office – and not just down to the bigger ones.[79] In other words, they maintained that the *entire* interoffice transport market – *all* transport currently encompassed by the FCC's interoffice transport UNE – was capable of attracting facilities-based competitors. Delineating between local and long-distance at the level of the class 5 switch, MCI insisted, was a practice "well-established in the telecommunications industry."[80]

Whatever the facts back then, interoffice transport is plainly competitive today, at least so far as larger wire centers with collocated CLECs are concerned. The costs of providing transport have dropped sharply in the intervening 17 years. *Id.* at II-21. And a CLEC that collocates in a wire center now can compete not just for long-distance traffic, but for all the local traffic and advanced services, too – a far larger market in terms of both dollars and traffic volumes. *Id.*

Many CLECs today throughout the country – including AT&T, MCI WorldCom, and Sprint – are proving MCI's and Sprint's pronouncements in 1982 correct.[81] AT&T has pursued a

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[79] *See* Objections of MCI Communications Corporation to Application for Approval of Exchange Areas, *United States v. Western Elec. Co.*, No. 82-0192 (D.D.C. filed Nov. 3, 1982); Southern Pacific Communications Company Objections to the October 4, 1982 Joint Application of the American Telephone and Telegraph Company and the Bell System Operating Companies for Approval of Proposed Exchange Areas or Local Access and Transport Areas, *United States v. Western Elec. Co.*, No. 82-0192 (D.D.C. filed Nov. 3, 1982).

[80] Objections of MCI Communications Corporation to Application for Approval of Exchange Areas at 9, *United States v. Western Elec. Co.*, No. 82-0192 (D.D.C. filed Nov. 3, 1982).

[81] As the FCC has noted, "once CAPs are interconnected to the central offices that handle heavy traffic, they can gain a significant share of the access market by selling their services to the three largest IXCs." Report and Order and Notice of Proposed Rulemaking, *Expanded Interconnection with Local Telephone Company Facilities*, 7 FCC Rcd 7369, 7422 n.253 (1992) ("*Special Access Expanded Interconnection Order*"); *see also id.* at 7380 [¶ 15]

strategy of "migration of dedicated and terminating access facilities from LEC to TCG facilities nationwide."[82] MCI WorldCom has "local phone facilities [that] cover nearly 90% of the local service areas in the U.S.,"[83] which enable the company to "bypass the RBOCs" and "save on both access and termination charges."[84] Sprint acknowledges that it has facilities-based "access alternatives . . . , including CLEC networks and fixed wireless."[85]

New competitors such as Qwest, Level 3, Enron, Metromedia Fiber Network, and IXC Communications "are in the midst of a fiber-building frenzy."[86] Electric utilities, which "own the third-largest telecom infrastructure in the nation,"[87] and cable companies have also sold fiber to CLECs. *Id.* at II-4. The use of fixed wireless radio technologies has grown rapidly as well. *Id.* Companies like WinStar and Teligent have built local networks using predominantly fixed wireless links, while established CLECs such as AT&T/TCG and MCI WorldCom are using fixed wireless connections to extend their existing fiber networks. *See id.* at II-4, II-17, Table 3. Today, there are more than 150 facilities-based CLECs, and many have deployed fiber facilities in numerous markets across the country. *Id.* at II-21.

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("Increased competition in the interstate special access market undoubtedly will result in some diversion of business from the LECs.").

[82] AT&T/TCG, *Merger Presentation*, Jan. 8, 1998, available at <http://www.att.com/ir/ep>.

[83] D. Pappalardo & D. Rhode, *Ebbers' Job Has Only Just Begun; Merging WorldCom, MCI Nets Will Prove Challenging*, Network World, Nov. 17, 1997 (quoting CEO John Sidgmore).

[84] D. Rhode, *Price: Buyout to Benefit Customers*, Network World, Nov. 17, 1997, at 11 (quoting Tim Price, MCI President and COO).

[85] Sprint PCS Press Release, *Remarks by Sprint Chairman & CEO William T. Esrey at Internet World*, July 15, 1998, available at <http://www.sprint.com/Stemp/press/releases/9807/9807150597.html>.

[86] T. Mack, *Fiber Frenzy*, Forbes, Apr. 19, 1999, at 252.

[87] J. Akasie, *Lighting Up*, Forbes, Apr. 19, 1999, at 242.

The FCC has already acknowledged the existence of competition in the provision of interoffice transport. In 1994, in its *Expanded Interconnection* proceedings, the Commission recognized both the feasibility and the actuality of competition in the local market for interoffice transport. The Commission found that "the view that LECs, as currently configured, constitute a natural monopoly has been eroding."[88] "[I]nterconnectors now are able to provide special access and switched transport transmission services in competition with the LECs."[89] The underlying economics of the interoffice transport market, the Commission concluded, suggested that competition "could develop more rapidly than" it previously had in long-distance markets.[90] In its *Local Competition Order*, the FCC found that "there are alternative suppliers of interoffice facilities in certain areas."[91] And, in the Bell Atlantic/NYNEX merger order, the FCC stated that "there are already a number of competitors offering [transport] services, and individual interexchange carriers (including MCI) often choose particular providers to carry large amounts of traffic on a dedicated basis."[92]

Thus, as the Commission has already acknowledged, competitive alternatives are clearly available in some segments of the market for interoffice transport. The key question in this proceeding is determining precisely where. As the UNE Fact Report establishes, *id.* at II-6-9, it

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[88] Comment of the Staff of the Bureau of Economics of the Federal Trade Commission, *Expanded Interconnection with Local Telephone Company Facilities*, CC Docket No. 91-141 (FCC filed Mar. 5, 1993).

[89] Third Report and Order, *Expanded Interconnection with Local Telephone Company Facilities*, 9 FCC Rcd 2718, 2719 [¶ 4] (1994).

[90] *Special Access Expanded Interconnection Order*, 7 FCC Rcd at 7380 n.37.

[91] 11 FCC Rcd at 15718 [¶ 441].

[92] *Bell Atlantic/NYNEX*, 12 FCC Rcd at 20042 [¶ 111].

is reasonable – indeed, conservative – to conclude that competitive interoffice transport is available to and from Dense Wire Centers (which we have defined, conservatively, as those wire centers serving 40,000 or more access lines) that have one or more collocated CLECs. The methodology by which we reach this standard is set out in detail in the UNE Fact Report, but, in brief, the facts establish that there is a reasonably good fit between wire centers with CLEC collocation and wire center serving areas that contain CLEC fiber. In SBC's region, for example, *at least* 90 percent of wire centers with collocation serve areas in which CLEC fiber is also found. *Id.* at II-8. The correlation is even stronger if we restrict the focus to Dense Wire Centers. In Dense Wire Centers serving areas in SBC's region, collocation implies the nearby presence of CLEC fiber *at least* 92 percent of the time. *Id.*

Furthermore, as the UNE Fact Report explains, the 40,000 lines wire center threshold is quite conservative. *First*, we have selected the most stringent definition of a "dense" wire center from among the alternatives discussed in the UNE Fact Report. *Id.* at II-7. *Second*, it is very likely that CLEC fiber actually serves even more collocated wire centers than the available data indicate. The available fiber maps are not, by any stretch, an exhaustive current representation of *all* CLEC and third-party fiber. They do not include the fiber of all CLECs within a given area, nor do they generally include fiber that public utilities or cable companies have deployed. The fiber routes themselves are incomplete and do not include many network spurs off of the main rings, many of which may run across wire center boundaries to a collocated central office. Moreover, the maps are somewhat dated – they are least six to nine months old and do not include fiber constructed since that time. *Third*, this analysis excludes the presence of other transport technologies, which are not only currently available but actually in use. Numerous